Fluid Reasoning Mediates the Association of Birth Weight With ADHD Symptoms in Youth From Multiplex Families With ADHD

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Abstract

Objective:
We tested mediation of birth weight and ADHD symptoms by multiple biologically plausible neurocognitive functions and evaluated familiality of observed indirect effects.

Method:
647 youth from 284 multiplex families with ADHD completed the Arithmetic, Digit Span, Vocabulary, and Block Design subtests of the Wechsler Intelligence Scale for Children (WISC). Multiple mediation tested WISC subtests as mediators of birth weight and multi-informant ADHD symptoms. Familiality of indirect effects was estimated via moderated mediation comparing conditional indirect effects across siblings concordant and discordant for ADHD.

Results:
Controlling for IQ and demographic factors, Arithmetic uniquely mediated birth weight and ADHD symptoms. Conditional indirect effects through Arithmetic did not differ across ADHD concordant and discordant siblings.

Conclusion:
These cross-sectional findings support previous prospective longitudinal research implicating Arithmetic (i.e., fluid reasoning) as a preliminary causal mediator of birth weight and ADHD symptoms, and suggest that this pathway is independent of genetic influences on ADHD.